ZW
AF$

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Giuseppe GUARINO, et al.

Docket No: Q52856

Appln. No.: 09/231,791

Group Art Unit: 1764

Confirmation No.: 2603

Examiner: Alexa Doroshenk

Filed: January 15, 1999

For: METHOD FOR IN-SITU MODERNIZATION OF A HETEROGENEOUS SYNTHESIS REACTOR

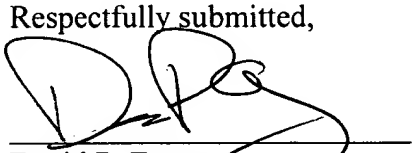
SUBMISSION OF APPEAL BRIEF

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an Appeal Brief. A check for the statutory fee of $250.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,



David P. Emery
Registration No. 55,154

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: December 14, 2006

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of	Docket No: Q52856
Giuseppe GUARINO, et al.	
Appln. No.: 09/231,791	Group Art Unit: 1764
Confirmation No.: 2603	Examiner: Alexa Doroshenk Neckel
Filed: January 15, 1999	

For: METHOD FOR IN-SITU MODERNIZATION OF A HETEROGENEOUS SYNTHESIS REACTOR

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

Table of Contents

12/15/2006 HDEMAS 00000004 09231791
01 FC:2402 250.00 OP

I. REAL PARTY IN INTEREST

The real party in interest is Ammonia Casale, S.A., the assignee of the present application. The assignment was recorded on January 15, 1999, at Reel 9723, Frame 0942.

II. RELATED APPEALS AND INTERFERENCES

Upon information and belief, there are no other pending appeals, interferences or judicial proceedings known to Appellant's Representative or the Assignee that may be related to, be directly affected by, or have a bearing on the Board's decision in the Appeal.

A prior Appeal on this application was heard on January 8, 2004, and decision mailed on February 10, 2004. That Appeal, No. 2003-1700, was not written for publication and is not binding precedent of the Board.

III. STATUS OF CLAIMS

Claim 1-10 are pending in the Application, stand rejected and are all the claims that are the subject of the present appeal. Specifically, all the claims stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Poussin (US 5,202,097) as presented in the decision by the Board of Patent Appeals and interferences filed February 10, 2004, and under 35 U.S.C. § 112, first paragraph.

IV. STATUS OF AMENDMENTS

Appellants submitted an Amendment Under 37 C.F.R. § 1.111 filed December 29, 2005. This Amendment was entered by the Examiner and, thus, the claims stand as amended on December 29, 2005. Accordingly, there are no outstanding, non-entered amendments of the claims.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The present invention is directed to a method for in-situ modernization of a heterogeneous synthesis reactor. The present invention is also directed to a heterogeneous synthesis reactor. More specifically the term "in-situ modernization" is understood to mean the on-site modification of a pre-existing reactor in order to improve its performances and obtain e.g. a production capacity and/or a conversion yield comparable to those of a newly-built reactor.[1]

The heterogeneous synthesis reactor is disclosed in the sole drawing and is of the type especially suitable for carrying out exothermic heterogeneous synthesis reactions at high pressure and temperatures (20-300 bar, 180-550°C), for instance, for the production of Ammonia or Methanol or for the conversion of carbon monoxide into carbon dioxide.[2] In this field of heterogeneous reactors, there exists a need for adapting pre-existing synthesis reactors to new catalysts which permit increasing reaction activity. This permits an improvement in the conversion yield, a reduction in the energy consumption and a lowering of investment costs.[3]

As is illustrated in FIG. 1, a broken line 12 shown in proximity to the upper end of the gas inlet wall 7 delimits the highest level that can be reached by the catalyst within the catalytic bed 6. [4] Before being modernized according to the present invention, the reactor 1 still had a

---

[1] Specification at page 1, lines 5-17.

[2] Specification at page 6, lines 27-31.

[3] Specification at page 1, lines 20-27.

[4] Specification at page 7

catalytic bed 6 whose volume was entirely taken up by a conventional catalyst. According to the present invention, the broken line 13 indicates the level reached by the catalyst in the modernized reactor 1. The catalyst inside the bed 6 is indicated by the numeral 14 and has a reaction activity to provide a production capacity of the reactor equivalent to the design capacity but taking up a volume substantially smaller than the volume of the catalytic bed 6. Due to the greater reaction activity, the mass of catalyst 14 loaded in the reactor once the reactor is modernized is much smaller than the catalyst mass employed before the modernization while still achieving the same production capacity. The arrows F indicate the various routes followed by the gas through the catalytic bed. According to the first step of the modernization method of the present invention there is provided a substantially cylindrical unperforated wall 15 disposed co-axially relative to the gas outlet wall 8 in the catalytic bed 6. The unperforated wall 15 protrudes downwardly from an upper end 8a of the gas outlet wall for a predetermined distance so as to define an annular free-space 16 between the gas outlet wall 8 and the unperforated wall 15 for the passage of a portion of the gas leaving the catalytic bed 6 as indicated by the arrows F.[5]

A further step of the present invention involves the provision of means for closing the free space 16 between the unperforated wall 15 and the gas outlet wall 8 in proximity to the upper end 8a of the latter. This prevents the bypass of the catalytic bed for the recycling of gases entering or leaving the reactor. By providing the unperforated wall near the upper end of the gas outlet wall and defining a free space 16 between the walls for the passage of reacted gases it is

[5] Specification at page 7-8.

possible to load the catalytic bed with amounts of catalyst substantially lower than the previous design amounts without affecting the running of the same adversely. Even though the level of the catalyst 14 remains well beneath the upper end 8a of the gas outlet wall 8 thereby leaving several holes of the wall 8 uncovered the unperforated wall 15 prevents gas reagents from crossing the catalytic bed 6 without penetrating into the catalytic mass and the free-space 16 allows the utilization of all the holes of the walls as outlets for the reaction products.[6]

Accordingly, an aspect of the present invention provides, as set forth in claim 1 (*See* FIG. 1), a method for in-situ modernization of a heterogeneous synthesis reactor, including an external shell comprising at least a catalytic bed (6) provided with a gas inlet perforated cylindrical wall (7) and a gas outlet perforated cylindrical wall (8), said method comprising the steps of:

providing an unperforated cylindrical wall (15) coaxial to said gas outlet wall (8) in said catalytic bed (6), said unperforated cylindrical wall (15) extending from an upper end (8a) of said gas outlet wall (8) along a perforated portion of said gas outlet wall and for a predetermined length in said catalytic bed such that once the catalyst (14) is loaded within said catalytic bed (6) at least a portion of said unperforated cylindrical wall (15) remains below the upper level (13) reached by said catalyst (14), so as to define a free-space (16) between the perforated gas outlet wall (8) and the unperforated wall (15), for the passage of a part of the gas leaving said catalytic bed (6) through said portion of the gas outlet wall (8) facing said free-space (16), said free space

[6] Specification at page 9, lines 7-34.

(16) having a thickness great enough to allow said passage without causing an additional pressure drop;

providing a capping means (17, p. 10, lines 25-33) for closing an upper end of said free-space (16) between the unperforated wall (15) which extends below the upper level (13) reached by said catalyst (14) and the gas outlet wall (8), in proximity of the upper end (8a) of the wall (8), preventing thereby a bypass of said catalytic bed or a recycling to the catalytic bed of the gas entering and leaving the reactor, respectively. (FIG. 1).

Claim 3 recites, the method according to claim 1, characterised in that said free-space (16) has a thickness between 0.5 and 10 cm.

Another aspect of the invention provides, as set forth in claim 6, a heterogeneous synthesis reactor comprising (*See* FIG. 1):

an external shell (2);

at least a radial or axial-radial catalytic bed (6), provided with a gas inlet perforated cylindrical wall (7) and a gas outlet perforated cylindrical wall (8), extended in said shell (2);

characterized in that it further comprises in said catalytic bed:

an unperforated cylindrical wall (15) coaxial to said gas outlet wall (8) in said catalytic bed (6), said unperforated cylindrical wall (15) extending from an upper end (8a) of said gas outlet wall (8) along a perforated portion of said gas outlet wall and for a predetermined length in said catalytic bed (6) such that once the catalyst (14) is loaded within said catalytic bed (6) at least a portion of said unperforated cylindrical wall (15) remains below the upper level (13) reached by said catalyst (14), so as to define a free-space (16) between the perforated gas outlet

wall (8) and the unperforated wall (15), for the passage of a part of the gas leaving said catalytic bed (6) through said portion of the gas outlet wall (8) facing said free-space (16), said free space (16) having a thickness great enough to allow said passage without causing an additional pressure drop;

a cap (17) which closes said free-space (16) between the unperforated wall (15) and the gas outlet wall (8), in proximity of the upper end (8a) of the latter, preventing thereby a bypass of said catalytic bed or a recycling to the catalytic bed of the gas entering and leaving the reactor respectively.

Claim 8 recites, the reactor according to claim 6, characterised in that said free-space (16) is substantially annular and has a thickness between 0.5 and 10 cm.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 1-10 comply with the written description requirement under 35 U.S.C. §112, first paragraph.

B. Whether claims 1-10 are unpatentable under § 103(a) over Poussin (US 5, 202,097) as presented in the decision by the Board of Patent Appeals and Interferences filed February 10, 2004.

For purposes of this appeal, claims 1 and 6 stand together and claims 3 and 8 stand together.

VII. ARGUMENT

At least for the reasons discussed below, Appellants submit that the rejections of the claims on appeal are improper, and reversal of each ground of rejection is requested. Appellant turns now to the rejections at issue:

A. Rejection of claims 1-10 under 35 U.S.C. § 112, first paragraph

As evidence by the following, the rejection of claims 1-10 under 35 U.S.C. § 112, first paragraph, is improper because the specification describes the invention, as claimed, in sufficient detail such that one skilled in the art could reasonably conclude that the inventor had possession of the claimed invention.

The Examiner alleges that claims 1-10 fail to comply with the written description requirement in view of the amendment of claims 1 and 6, which added the terms "cap" or "capping means." The Examiner alleges that there is no recitation or support in the specification for a "cap."

In contrast, Appellants respectfully submit that the written description does provide adequate support for this claim recitation. In particular, Appellants submit that support for this recitation is clear from an illustrative non-limiting embodiment which has a horizontal gas tight baffle 17 which protrudes from the upper end 8a of the gas outlet wall 8, and which supports unperforated wall 15. (*See* Specification, p. 10, lines 25-32; FIG. 1). Additionally, the specification describes that this wall 15 and baffle form a gas tight portion which rests upside down on lid 10. (*See* Specification, p. 10, lines 30 though page 11, line 5.) Furthermore, while

the specification does not explicitly recite the term "cap," one of ordinary skill in the art would reasonably conclude that the configuration of the wall 15 and the horizontal gas-tight baffle disposed on lid 10 show that Appellants had possession of the invention as claimed. Appellants submit that this is enough description to lead one skilled in the art that the inventor had possession of the invention.

B. Rejection of claims 1 -10 under 35 U.S.C. § 103(a) over Poussin (US 5, 202,097)

1. Rejection of claims 1 and 6 over Poussin

Appellants submit that the rejection of claims 1 and 6 under 35 U.S.C. § 103(a) over Poussin as presented by the decision of the Board of Patent Appeals and Interferences filed February 10, 2004, is improper because Poussin fails to teach or suggest all the features recited in claims 1 and 6.

For example, claim 1 recites, *inter alia*,

> providing an unperforated cylindrical wall (15) coaxial to said gas outlet wall (8) in said catalytic bed (6), said unperforated cylindrical wall (15) extending from an upper end (8a) of said gas outlet wall (8) along a perforated portion of said gas outlet wall and for a predetermined length in said catalytic bed such that once the catalyst (14) is loaded within said catalytic bed (6) **at least a portion of said unperforated cylindrical wall (15) remains below the upper level (13) reached by said catalyst (14), so as to define a free-space (16) between the perforated gas outlet wall (8) and the unperforated wall (15), for the passage of a part of the gas leaving said catalytic bed (6) through said portion of the gas outlet wall (8) facing said free-**

> **space (16), said free space (16) having a thickness great enough to allow said passage without causing an additional pressure drop.**

Appellants respectfully submit that Poussin fails to teach or suggest, at least, at least a portion of said unperforated cylindrical wall 15 remains below the upper level 13 reached by said catalyst, as recited in claim 1.

Rather, as disclosed by Poussin, no portion of the metal cap 10 remains below the upper level of the catalyst mass once the latter is loaded in the catalytic bed 7. In Poussin, the catalyst mass 31 is confined in the annular catalytic compartments 8 (indicated in figure 1 by oblique lines), which clearly lies below the catalyst bed covering 19. The catalyst 31 is covered on top by this flexible covering 19, which is in turn covered by a layer of inert balls 11, 12, 13 (see for instance column 2, lines 31-33, 35-37, 52-56). Furthermore, Poussin's cap 10 is merely immersed in the layer of inert balls 11, 12, 13, not the catalyst mass 31. These inert balls serve no catalystic purpose and cannot be compared or confused with catalyst particles. In particular, in all the figures it is clearly shown that the cap never extends below the catalyst cover layer 19, i.e., the cap 10 remains above the upper level reached by the catalyst mass 31. (*See* FIGS. 4-7).

To the contrary, according to present claim 1, an unperforated cylindrical wall is explicitly provided, which remains below the upper level reached by the catalyst mass in the catalyst bed, and which is at least partially surrounded and covered by the catalyst mass.

In the Response to Arguments section of the March 17, 2006, Office Action, the Examiner contends that as stated in the February 10, 2004, Board of Patent Appeals and

Interferences decision, "Based on the teachings of Poussin, a person of ordinary skill in the art would have reasonably expected that the cap 10 would cover perforations in the gas tube 9." Therefore, such a reasonable expectation would result in the cap to extend into the catalyst bed, where perforations are located. (Office Action of March 17, 2006, p. 3-4).

However, in contrast to the Examiner's reading of the Board's decision, Appellants submit that the Board merely limited to the cap 10 to covering perforations in the gas tube 9 "extended above the catalyst bed." (Board of Patent Appeals and Interferences Decision, January 8, 2004, p. 6). In the proper context, this portion of the Board's decision was merely to provide a basis that perforations may exist above the catalyst bed. There is no logical basis for extending the Board's reasoning here to conclude that the cap 10 would be extended into the catalyst bed.

Furthermore, that a portion of the unperforated cylindrical wall (15) would extend below an upper level of the catalyst bed is neither disclosed nor suggested in Poussin. In fact, in each embodiment of Poussin, the cap 10 ends at the upper level of the catalyst mass (FIGS. 4-7) such that the gas may pass through the filler thickness in a radial manner. (col. 2, lines 25-27). This passing via a radial manner is in conflict with an extension of the cap 10 into the catalyst mass.

Thus, because Poussin fails to teach or suggest wherein a portion of said unperforated cylindrical wall remains below the upper level of the catalyst, Appellants submit that this rejection is in error.

Further, Appellants submit that for the same reasons, claim 6 is patentable as it similarly discloses a cap (15, 17) which closes the free space (16) between the unperforated wall (15) and

the gas outlet wall, wherein unperforated cylindrical wall (15) remains below the upper level (13) reached by the catalyst (14).

Additionally, Appellants submit that claims 2-5 and 7-10 are allowable, at least because of their dependency.

2. Rejection of claim s3 and 8 over Poussin

Appellants submit that the rejection of claims 3 and 8 is in error because the Examiner has failed to establish *prima facie* obviousness.

In particular, claim 2 recites, *inter alia*, said free-space (16) has a thickness between 0.5 and 10 cm. In the rejection of this claim, the Examiner concedes that Poussin fails to disclose the size of the free space. However, the Examiner rejects the claims indicating that because it has been held that one of ordinary skill in the art would find it *prima facie* obvious to arrive at an optimum or workable range of the free space by mere routing optimization. (*citing* In re Aller, 220 F.2d, 454, 456 (CCPA 1955); *see* Office Action of March 17, 2006, p. 3). Additionally, the Examiner alleges that a change in size and shape is not patentably distinct over the prior art absent persuasive evidence that the particular configuration of the claimed invention is significant. (*citing* In re Rose, 220 F.2d 459; *see* Office Action of March 17, 2006, p. 3).

First, with regard to arriving at Appellants claim recitations via routing optimization, Appellants respectfully submit that this modification is improper because the recited free space has not been recognized as a result effective variable. In order to optimize a variable, such as the recited free space, it must be recognized that the variable "achieves a recognized result." (MPEP § 2144.05 (II)(B) *citing* In re Antonie, 195 USPQ 6 (CCPA 1977). Accordingly, this basis of the

rejection is erroneous because no portion of Poussin recognizes that this space achieves any result. To the contrary, Poussin teaches that cap 10 may be sufficiently tight with respect to the gas and effluent. (col. 9, lines 39-41). Thus, Poussin, which is silent on any purpose for a free space, indicates that the space need not even exist. Therefore, because the recited free space is not recognized as achieving any result, the rejection based on routine optimization is in error.

Second, with regard to the Examiner's suggested modification by changing size and shape, Appellants submit that because the present invention performs a function not disclosed in Poussin, and the recited dimensions of the free space are directed to the performance of this function, that the suggested modification would not be obvious to one having ordinary skill in the art.

In particular, the present invention is the provision of a free space between the unperforated cylindrical wall and the gas outlet perforated cylindrical wall, having a thickness great enough not to cause additional pressure drop to the portion of reacted gases leaving the catalyst mass and passing through said free space. (Specification, p. 11, lines 25-32).

This distinguishing feature is extremely significant to the present invention since it contributes in an essential way to solve the technical problem of the present invention that is the problem of avoiding reactants to bypass the catalyst mass in case of an incomplete filling of the catalyst bed, maintaining at the same time the fluid dynamics characteristics of a completely filled catalytic bed. Persuasive evidence of such relevance can for instance be clearly deduced from the present description, at page, 9, lines 26-34 in combination with page 10, lines 13-15.

As admitted by the Examiner, this feature is not disclosed in Poussin. However, contrary to the Examiner's opinion, such a feature cannot be considered prima facie obvious to the skilled person.

Gas, as such, can flow even through a free space of very small thickness. Therefore, supposing that Poussin discloses a free space between the cap and the central stack 9 (supposition that is still contested by the Applicant), such a free space would be fully suitable for being crossed by a gas flow. There is no indication or incentive in Poussin for the skilled person to look at a specific thickness of such a free space. In other words, any thickness would be at an optimum or workable size range according to Poussin.

In this connection, the attention of the Examiner should be drawn to the fact that we are not at all in a situation wherein the closest prior art is concerned with a same technical problem and suggest a similar solution with respect to the claimed invention, wherein the only difference is the identification of optimal or workable ranges by routine experimentation.

Poussin is not concerned with the technical problem of the present invention nor does it aim to solve a similar problem. This feature is thus totally ignored according to the teaching of Poussin and in the absence of an incentive or teaching to do so the skilled person would have not found it without the exercise of an inventive skill.

Again, any assertion that also this distinguishing feature would have been obvious to the skilled person without any prior art substantiation should be traversed as being the result of an inadmissible ex post facto analysis of the invention.

Thus, Appellants respectfully submit that claim 3 is allowable, at least for the reasons set forth above. Additionally, because claim 8 recites features similar to those argued above with regard to claim 3, Appellants submit that claim 8 is allowable, for at least the same reasons set forth above.

Conclusion

For at least the reasons set forth above, Appellant submits that the outstanding rejections are in error and reversal is respectfully requested.

Unless a check is submitted herewith for the fee required under 37 C.F.R. §41.37(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

David P. Emery
Registration No. 55,154

Date: December 14, 2006

CLAIMS APPENDIX

CLAIMS 1-10 ON APPEAL:

1. A method for in-situ modernization of a heterogeneous synthesis reactor, including an external shell comprising at least a catalytic bed (6) provided with a gas inlet perforated cylindrical wall (7) and a gas outlet perforated cylindrical wall (8), said method comprising the steps of:

providing an unperforated cylindrical wall (15) coaxial to said gas outlet wall (8) in said catalytic bed (6), said unperforated cylindrical wall (15) extending from an upper end (8a) of said gas outlet wall (8) along a perforated portion of said gas outlet wall and for a predetermined length in said catalytic bed such that once the catalyst (14) is loaded within said catalytic bed (6) at least a portion of said unperforated cylindrical wall (15) remains below the upper level (13) reached by said catalyst (14), so as to define a free-space (16) between the perforated gas outlet wall (8) and the unperforated wall (15), for the passage of a part of the gas leaving said catalytic bed (6) through said portion of the gas outlet wall (8) facing said free-space (16), said free space (16) having a thickness great enough to allow said passage without causing an additional pressure drop;

providing a capping means (17) for closing an upper end of said free-space (16) between the unperforated wall (15) which extends below the upper level (13) reached by said catalyst (14) and the gas outlet wall (8), in proximity of the upper end (8a) of the wall (8), preventing thereby

a bypass of said catalytic bed or a recycling to the catalytic bed of the gas entering and leaving the reactor, respectively.

2. The method according to claim 1, characterised in that said unperforated wall extends for a portion corresponding to 5%-50% of the length of said gas outlet wall (8).

3. The method according to claim 1, characterised in that said free-space (16) has a thickness between 0.5 and 10 cm.

4. The method according to claim 1, characterised in that said unperforated wall (15) is supported by said gas outlet wall (8).

5. The method according to claim 4, wherein said gas outlet wall (8) has a diameter smaller than the diameter of said gas inlet wall (7) and of said unperforated wall (15), characterised in that said unperforated wall (15) is supported by a gas-tight horizontal baffle (17) which protrudes above the upper end (8a) of said gas outlet wall (8), and rests on the same.

6. A heterogeneous synthesis reactor comprising:

an external shell (2);

at least a radial or axial-radial catalytic bed (6), provided with a gas inlet perforated cylindrical wall (7) and a gas outlet perforated cylindrical wall (8), extended in said shell (2);

characterized in that it further comprises in said catalytic bed:

an unperforated cylindrical wall (15) coaxial to said gas outlet wall (8) in said catalytic bed (6), said unperforated cylindrical wall (15) extending from an upper end (8a) of said gas outlet wall (8) along a perforated portion of said gas outlet wall and for a predetermined length in said catalytic bed (6) such that once the catalyst (14) is loaded within said catalytic bed (6) at

least a portion of said unperforated cylindrical wall (15) remains below the upper level (13) reached by said catalyst (14), so as to define a free-space (16) between the perforated gas outlet wall (8) and the unperforated wall (15), for the passage of a part of the gas leaving said catalytic bed (6) through said portion of the gas outlet wall (8) facing said free-space (16), said free space (16) having a thickness great enough to allow said passage without causing an additional pressure drop;

a cap (17) which closes said free-space (16) between the unperforated wall (15) and the gas outlet wall (8), in proximity of the upper end (8a) of the latter, preventing thereby a bypass of said catalytic bed or a recycling to the catalytic bed of the gas entering and leaving the reactor respectively.

7. The reactor according to claim 6, characterised in that said unperforated wall (15) extends for a length corresponding to 5%-50% of the length of said gas outlet wall (8).

8. The reactor according to claim 6, characterised in that said free-space (16) is substantially annular and has a thickness between 0.5 and 10 cm.

9. The reactor according to claim 6, characterised in that said unperforated wall (15) is supported by said gas outlet wall (8).

10. The reactor according to claim 9, wherein said gas outlet wall (8) has a diameter smaller than the diameter of said gas inlet wall (7) and of said unperforated wall (15), characterised in that said unperforated wall (15) is supported by a gas-tight horizontal baffle (17) which protrudes above the upper end (8a) of said gas outlet wall (8), and rests on the same.

EVIDENCE APPENDIX:

Pursuant to 37 C.F.R. § 41.37(c)(1)(ix), submitted herewith are copies of any evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 or any other evidence entered by the Examiner and relied upon by Appellant in the appeal.

NONE.

RELATED PROCEEDINGS APPENDIX

Submitted herewith are copies of decisions rendered by a court or the Board in any proceeding identified about in Section II pursuant to 37 C.F.R. § 41.37(c)(1)(ii).